Iowa Department of Transportation

DS-01013
(New)

DEVELOPMENTAL SPECIFICATIONS

FOR

HIGH PERFORMANCE CONCRETE FOR PRESTRESSED CONCRETE BEAMS

Effective Date
October 29, 2002

THE STANDARD SPECIFICATIONS, SERIES 2001, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

Section 2407 of the Standard Specifications shall apply with the following modifications.

This work shall consist of providing high performance concrete for prestressed concrete beams. High performance concrete consists of producing a concrete mix with low permeability and high strength.

Replace references to coarse aggregate in Article **2407.02, A, Aggregates,** with the following:

Coarse aggregate shall be crushed limestone meeting class 3 durability or better.

Add the following to Article **2407.03, Trial Batch Concrete**:

The Contractor may submit up to two trial batches of concrete per project at no cost. The Contractor will be charged $500 for each additional trial batch submittal or resubmittal. The District Materials Engineer may waive trial batch testing for a mix, provided the mix was previously tested and resulted in satisfactory mix properties. Adjustments to a previously approved mix, not requiring a new trial batch, will be at the discretion of the District Materials Engineer. The trial batch concrete shall be of a size typically used in day-to-day operations and shall be made at least 60 days prior to placement. The trial batch concrete shall be designed to produce a slump within ± 4 inches (±100 mm) of placement slump.

The District Materials Engineer, Plant Inspector, and Materials Structural Engineer shall be notified at least 7 days prior to batching. The Plant Inspector shall cast all samples from the trial batch concrete.

Trial batch concrete shall be tested for permeability by the Contracting Authority. Two permeability samples shall be cast in 4 inches by 8 inches (100 mm by 200 mm) plastic cylinder molds and capped. Within 5 days of casting the samples shall be delivered to the Central Materials Testing Laboratory. The samples shall remain in their plastic molds with their lids until delivered. The samples shall be stripped of their molds and wet cured to an age of 7 days in the moist room. After 7 days, the samples shall be submerged in water heated to 100°F (37.7°C) until an age of 28 days or more. Two test specimens shall be obtained from each cylinder. Permeability shall be tested in accordance with AASHTO T277 at 28 days or more. A coulomb reading of 2500 or less, based on the average of four test results, shall be considered acceptable.

Trial batch materials, proportions, and test results shall be reported to the District Materials Engineer for approval.